

SEXUAL BEHAVIOR IN *HYPOSOTER FUGITIVUS* (HYMENOPTERA: ICHNEUMONIDAE)¹

Edward M. Barrows²

ABSTRACT: Sexual behavior in males of *Hyposoter fugitivus* is similar to that of other ichneumonid wasps. Sexually aroused males vibrate wings and antennae while pursuing females and antennate females when near them. During copulation lasting about 17 min, a male lay to the right of the female in a position unusual for Hymenoptera in copula.

DESCRIPTORS: Ichneumonidae, *Hyposoter fugitivus*, *Quercus coccinea*, *Anisota senatoria*, sexual behavior.

Knowledge of mating behavior in Ichneumonidae, a family of parasitic wasps which may contain as many as 60,000 species (Townes, 1969), is extremely limited. Gordh and DeBach (in press), who surveyed the literature on this subject, found reference to mating behavior in only eight species and Gordh and Hendrickson (in press) noted mating in *Bathyplectes*. Details of a mating of *Hyposoter fugitivus* (Say) are reported here.

H. fugitivus parasitized 30% of 148 small larvae of *Anisota senatoria* (J.E. Smith) (Lepidoptera: Saturniidae) found feeding on the same branch of an oak tree, *Quercus coccinea* Muenchh. 1.3 m above the ground in Reston, Fairfax County, Virginia on August 26. Parasitized *Anisota* larvae were recognized by their immobility and abnormal body form.

Twenty-eight parasitized larvae were individually placed in 9 cm³ glass vials plugged with cheesecloth. Vials were maintained near a north-facing window in indirect sunlight at room temperature, 21 to 27°C. One wasp emerged from each moth larva.

Interactions between males and females of four pairs of 3- to 4-day-old virgin, adult wasps were observed. One pair was placed in a 9 cm³, clear glass vial with a cheesecloth plug and the other pairs were placed in 80 cm³ petri dishes in late morning under indirect sunlight at 24°C. I continuously observed the wasps for 90 min.

Initially males approached females, briefly antennated females' antennae, and then quickly moved away from females; males

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² Department of Biology, Georgetown University, 37th & O Streets, Washington, D.C. 20057

moved their antennae alternately. Males began rapid antennal quivering, persistently approaching females (which seemed to ignore males), and vigorous wing fluttering in 14 min. The pair in a vial commenced copulation within 15 min from the beginning of the observational period and copulation lasted for 16 min and 57 sec. No courtship was seen after the male mounted the female. The male lay to the right of the female in a position unusual for copulating Hymenoptera. The fore- and middle legs of the female were on the substrate. Her left hind tarsi touched the dorsum of the male's thorax and her right hind tarsi touched the male's metasoma. The male's left leg touched the female's metasoma and his other legs were on the substrate. The male did not move. Near the end of copulation the female moved her head slightly from side to side 45 times in 1 min. At the end of copulation the male quickly detached from the female and moved away from her for a few seconds. Then both sexes crawled in the vial touching one another intermittently. During the 30 min after copulation, the male approached the female several times and fluttered his wings, but no second copulation occurred. Finally the male was placed in a vial with a novel, virgin female for 20 min. He occasionally approached her and rapidly fluttered his wings but did not mate.

After 60 min the pairs of wasps which were in petri dishes and did not copulate were transferred to separate vials and observed for 30 additional minutes. Males frequently antennated females and occasionally approached them while fluttering wings; however, no copulation ensued. Sexually aroused males of *H. fugitivus* behave similarly to other ichneumonids in that they vibrate their wings and antennate females.

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